CLAIMS

1. Method for detecting defects, the method comprising the procedures of:

identifying theoretically-symmetrical windows in an object-image;

analyzing said theoretically-symmetrical windows according to expected symmetry of said theoretically-symmetrical windows; and

determining the presence of defects according to a deviation from said expected symmetry.

2. The method according to claim 1, further comprising a preliminary procedure of scanning a physical object, thereby producing said object-image.

3. The method according to claim 1, further comprising a preliminary procedure of analyzing a database-image thereby identifying symmetrical database-image windows therein, wherein said theoretically-symmetrical windows are identified according to said symmetrical database-image windows.

4. The method according to claim 2, further comprising a preliminary procedure of analyzing a database-image thereby identifying symmetrical database-image windows therein, wherein said theoretically-symmetrical windows are identified according to said symmetrical database-image windows.

5. The method according to claim 3, wherein said procedure of analyzing said database-image comprises the procedures of:

identifying at least one database-image element; and

determining a symmetrical database-image window for each of said at least one database-image element.

6. The method according to claim 5, wherein said procedure of analyzing a database-image further comprises a procedure of determining symmetry properties of said database-image element.

7. The method according to claim 5, wherein said procedure of analyzing a database-image further comprises a procedure of determining dimensions of said database-image element.

8. The method according to claim 6, wherein said procedure of analyzing said database-image further comprises a procedure of determining dimensions of said database-image element.

9. The method according to claim 1, wherein said procedure of analyzing theoretically-symmetrical windows comprises procedures of:

identifying theoretically symmetrically-similar windows and a manipulation associated therewith, from said theoretically-symmetrical window;

manipulating at least one of said theoretically symmetrically-similar windows thereby producing a plurality of theoretically-identical windows; and

comparing said theoretically-identical windows there between, thereby producing a comparison result.

10. The method according to claim 3, wherein said procedure of identifying theoretically-symmetrical windows in an object-image, comprises procedures of:

registering a symmetrical database-image window in said object-image, thereby identifying an initial symmetry-testing window; and

identifying said symmetry-testing window as a theoretically-symmetrical window.

11. The method according to claim 10, further comprising a procedure of refining said symmetry-testing window.

12. The method according to claim 11, wherein said procedure of refining said symmetry-testing window is performed according to a symmetry-based optimization.

13. The method according to claim 12, further comprising a procedure of refining said symmetry-testing window by interpolating results calculated in said symmetry-based optimization.

14. The method according to claim 10, wherein said procedure of registering a symmetrical database-image window in said object-image, comprises procedures of:

identifying an object-image window;

producing an alignment-assessment value for said object-image window according to an alignment-assessment function; and

identifying an optimal object-image window;

wherein a sequence of said procedure of identifying an object-image window and said procedure of producing an alignment-

assessment value, is repeated for a plurality of iterations, each of said plurality of iterations involving a different object-image window.

15. The method according to claim 14, wherein said procedure of registering a symmetrical database-image window in said object-image, further comprises a preliminary procedure of defining said alignment-assessment function.

16. The method according to claim 12, wherein said procedure of refining said symmetry-testing window, comprises procedures of:

producing a symmetry-assessment value for said symmetry-testing window according to a symmetry-assessment function; and

identifying an optimal symmetry-testing window.

17. The method according to claim 16, further comprising the procedure identifying another symmetry-testing window in said object-image, after said procedure of producing a symmetry-assessment value,

wherein a sequence of said procedure of identifying another symmetry-testing window and said procedure of producing a symmetry-assessment value, is repeated for at least one iteration, each of said at least one iteration involving a different symmetry-testing window.

18. The method according to claim 16, wherein said procedure of refining said symmetry-testing window, further comprises a preliminary procedure of defining said symmetry-assessment function.

19. The method according to claim 2, wherein said physical object is a photographic mask.

20. The method according to claim 2, wherein said physical object is a reticle.

21. The method according to claim 2, wherein said physical object is a printed material.

22. The method according to claim 2, wherein said physical object is a fabricated material.

23. The method according to claim 1, wherein said procedures are performed in real-time.

24. The method according to claim 1, wherein said expected symmetry is axial.

25. The method according to claim 1, wherein said expected symmetry is rotational.

26. The method according to claim 1, wherein said expected symmetry is axial-rotational.

27. System for detecting defects in an object-image, the system comprising:

a storage unit, at least storing at least a portion of said object-image; and

a processor coupled with said storage unit, a database and a human interface,

wherein said processor identifies theoretically-symmetrical windows in said at least a portion of said object-image, according to an analysis of at least a portion of a database-image retrieved from said database; and

wherein said processor detects defects in said theoretically-symmetrical windows according to a deviation from expected symmetry properties of said theoretically-symmetrical windows.

28. The system according to claim 27, further comprising a scanner, producing said object-image.

29. The system according to claim 27, wherein said processor further identifies at least one database-image element in said database-image; and

wherein said processor further determines a symmetrical database-image window respective of said at least one database-image element, when said database-image is symmetrical.

30. The system according to claim 29, wherein said processor further determines dimensions and symmetry properties of said database-image element.

31. The system of according to claim 30, wherein said processor registers a symmetrical database-image window in said object-image, thereby identifying a symmetry-testing window; and

wherein said processor identifies said symmetry-testing window as a theoretically-symmetrical window.

32. The system according to claim 31, wherein said processor further refines said symmetry-testing window.

33. The system according to claim 32, wherein said processor performs said refining of said symmetry-testing window according to a symmetry-based optimization.

34. The system according to claim 33, wherein said processor further refines said symmetry-testing window by interpolating results calculated in said symmetry-based optimization.

35. The system according to claim 33, wherein said processor further refines said symmetry-testing window by interpolating results calculated in said symmetry-based optimization.

36. The system according to claim 27, wherein said storage unit further stores said database.